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EXAMINER	
HO, ALLEN C	
ART UNIT	**PAPER NUMBER**
2882	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/797,993	HEUMANN ET AL.
	Examiner	Art Unit
	Allen C. Ho	2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 21 is objected to because of the following informalities:

Line 1, "indirect measurement" should be replaced by --automated inspection--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-18 claim a sensor that produces a raw measurement. However, claims 1-18 do not claim a radiation source. The specification does not enable one skilled in the art to produce raw measurement without a radiation source.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8 and 19-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-8 and 19-29 recite a correction function, a reference map, a correction function fitting procedure, a reference map function fitting procedure, and a classification function. These recitations do not constitute structural limitations because they are not associated with a computer, a processor, or memory.

6. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a radiation source.

A sensor cannot produce a raw measurement without a radiation source.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4, 5, 7-9, 19, 21-24, 26-30, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Gusterson (U. S. Patent No. 6,347,131 B1).

With regard to claim 1, Gusterson disclosed an indirect measurement system for determining an estimated value of a parameter (volume) of interest of an object, comprising: a sensor (9) that produces a raw measurement that is indirectly representative of the parameter of

interest of the object; a correction function that corrects the raw measurement to a corrected measurement (thickness) to minimize measurement differences between the indirect measurement system and a reference indirect measurement system (a reference indirect measurement system is a system that indirectly measures a thickness of an object; column 5, lines 13-20); a reference map function that estimates the estimated value of the parameter of interest of the object based on the corrected measurement (column 5, lines 20-24); and a correction function fitting procedure (interpolation) that fits the correction function based on reference values for one or more calibration samples (test blocks) measured on or simulated for the reference indirect measurement system and corresponding values and corresponding values measured on the indirect measurement system (column 6, lines 3-45).

With regard to claim 4, Gusterson disclosed an indirect measurement system in accordance with claim 1, further comprising: a classification function that classifies the object into one of a plurality of classes based on the estimated value of the parameter of interest (column 8, lines 34-42).

With regard to claim 5, Gusterson disclosed a system comprising: a correction function fitting procedure (interpolation) that fits the correction function based on reference values for one or more calibration samples (test blocks) measured on or simulated for the second indirect measurement system and corresponding values measured on the first indirect measurement system (column 6, lines 3-45). Note: The recitation "A system <u>for</u> ..." has been interpreted as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. Consequently, any fitting procedure would read on the claim. In other words, the origin or the nature of the data being fit is irrelevant. Furthermore, the only element in the system is the correction function fitting procedure since the system comprises only the correction function fitting procedure.

With regard to claim 6, Gusterson disclosed a system in accordance with claim 5. However, since claim 6 fails to set forth additional structural limitation, it is accordingly rejected with claim 5.

With regard to claim 7, Gusterson disclosed a system in accordance with claim 5, wherein: the correction function fitting procedure permits updating the correction function without updating the reference map function (they are independent of each other).

With regard to claim 8, Gusterson disclosed a system in accordance with claim 5, further comprising: a reference map function fitting procedure that fits the reference map function based on known values of the parameter of interest associated with each of one or more reference calibration samples and corresponding reference values for the one or more reference calibration samples measured on or simulated for the second indirect measurement system. Note: As set forth in claim 5, any fitting procedure would read on this claim.

With regard to claim 9, Gusterson disclosed a method for calibrating a first indirect measurement system with respect to a second indirect measurement system, the first indirect measurement system comprising a sensor (**9**) that produces a raw measurement (outputs from photodiodes **10**) that is indirectly representative of a parameter (volume) of interest of an object sensed by the sensor, a correction function that corrects the raw measurement to a corrected measurement (thickness) to minimize measurement differences between the first indirect

measurement system and the second measurement system (column 5, lines 13-20), and a reference map function that estimates an estimated value of the parameter of interest of the object based on the corrected measurement (column 5, lines 20-24), the method comprising the steps of: obtaining measurement values of one or more calibration samples measured on the first indirect measurement system; and fitting (interpolating) the correction function based on the obtained measurement values of the one or more calibration samples and corresponding known reference values measured on or simulated for the second indirect measurement system (column 6, lines 3-45).

With regard to claim 19, Gusterson disclosed an automated inspection system, comprising: an imaging system utilizing a source (**4**) of penetrating radiation and one or more sensors (**9**) to detect the penetrating radiation transmitted through an object to generate an image of the object from which is derived one or more features of the object that are representative of a parameter (volume) of interest of the object; a correction function that corrects the one or more features derived from the image of the object to one or more corresponding corrected features (thickness) to minimize differences between the automated inspection system and a reference automated inspection system (column 5, lines 13-20); and a reference map function that estimates an estimated value of the parameter of interest of the object based on the one or more corresponding corrected feature (column 5, lines 20-24); and a correction function fitting procedure (interpolation) that fits the correction function based on one or more features derived from one or more images of one or more calibration samples imaged on the automated inspection system and corresponding reference features derived from one or more reference images imaged on the reference automated inspection system (column 6, lines 3-45).

With regard to claim 21, Gusterson disclosed an automated inspection system in accordance with claim 19, further comprising: a classification function that classifies the object into one of a plurality of classes based on the estimated value of the parameter of interest (column 8, lines 34-42).

With regard to claim 22, Gusterson disclosed an automated inspection system in accordance with claim 19, wherein the source of penetrating radiation comprises x-rays (column 6, lines 46-59); and the image of the object comprises gray level values representing detection of x-rays (column 6, lines 41-45).

With regard to claim 23, Gusterson disclosed an automated inspection system in accordance with claim 19. However, since claim 23 fails to set forth additional structural limitation, it is accordingly rejected with claim 19. MPEP § 2115.

With regard to claim 24, Gusterson disclosed a system comprising: a correction function fitting procedure (interpolation) that fits the correction function based on one or more features derived from one or more images of one or more calibration samples imaged on the first automated inspection system and corresponding reference features derived from one or more reference images imaged on the second automated inspection system (column 6, lines 3-45). Note: The recitation "A system <u>for</u> ..." has been interpreted as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Consequently, any fitting procedure would read on the claim. In other words, the origin or the nature of the data being fit is irrelevant. Furthermore, the only element in the system is the

correction function fitting procedure since the system <u>comprises</u> only the correction function fitting procedure.

With regard to claim 25, Gusterson disclosed a system in accordance with claim 24. However, since claim 25 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 26, Gusterson disclosed a system in accordance with claim 24, wherein: the correction function fitting procedure permits updating the correction function without updating the reference map function (the correction function fitting procedure is an independent procedure).

With regard to claim 27, Gusterson disclosed a system in accordance with claim 24, further comprising: a reference map function fitting procedure that fits the reference map function based on known values of the parameter of interest associated with each of one or more reference calibration samples and corresponding reference features derived from one or more images of the one or more reference features derived from one or more images of the one or more reference calibration samples imaged on the second automated inspection system (column 6, lines 3-45). Note: As set forth in claim 24, any fitting procedure would read on this claim.

With regard to claim 28, Gusterson disclosed a system in accordance with claim 24. However, since claim 28 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 29, Gusterson disclosed a system in accordance with claim 24. However, since claim 29 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 30, Gusterson disclosed a method for calibrating a first automated inspection system with respect to a second automated inspection system, the first automated inspection system comprising an imaging system utilizing a source (**4**) of penetrating radiation and one or more sensors (**9**) to detect the penetrating radiation transmitted through an object to generate an image of the object from which is derived one or more features (photodiode output) of the object that are representative of a parameter (volume) of interest of the object, a correction function that corrects the one or more features derived from the image of the object to one or more corresponding corrected features (thickness) to minimize differences between the first automated inspection system and the second automated inspection system, and a reference map function that estimates an estimated value of the parameter of interest of the object based on the one or more corresponding corrected features, the method comprising the steps of: obtaining one or more features (photodiode outputs) derived from one or more images of one or more calibration samples (test blocks) imaged on the first automated inspection system; and fitting the correction function based on the one or more features derived from the one or more images of the one or more calibration samples and corresponding reference features derived from one or more reference images imaged on the second automated inspection system (column 6, lines 3-45).

With regard to claim 35, Gusterson disclosed a method in accordance with claim 30, wherein: the source of penetrating radiation comprises x-rays (column 6, lines 46-59); and the one or more images or features derived therefrom comprises a gray level value reflecting detection of the x-rays penetrating the object (column 6, lines 41-45).

9. Claims 1-10, 12, 13, 19-31, and 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Heumann (U. Patent No. 6,201,850 B1).

With regard to claim 1, Heumann disclosed an indirect measurement system for determining an estimated value of a parameter (thickness) of interest of an object, comprising: a sensor (**30**, **240**) that produces a raw measurement that is indirectly representative of the parameter of interest of the object; a correction function (**510**, **520**, **530**) that corrects the raw measurement (F) to a corrected measurement (ΔG) to minimize measurement differences between the indirect measurement system and a reference indirect measurement system (column 25, line 20 - column 32, line 27); a reference map function (Eqs. 19-21) that estimates the estimated value of the parameter of interest of the object based on the corrected measurement (column 32, line 30 -column 34, line 50); and a correction function fitting procedure that fits the correction function (**510**) based on reference values (**512a** - **512k**) for one or more calibration samples measured on or simulated for the reference indirect measurement system and corresponding values and corresponding values measured on the indirect measurement system (column 28, lines 28 - column 29, line 21).

With regard to claim 2, Heumann disclosed an indirect measurement system in accordance with claim 1, wherein: the correction function comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters (column 30, line 5 - column 31, line 14).

With regard to claim 3, Heumann disclosed an indirect measurement system in accordance with claim 1, comprising: a reference map function fitting procedure that fits the reference map function based on known values of the parameters of interest associated with each

of one or more reference calibration samples and corresponding reference values for the one or more reference calibration samples measured on or simulated for the reference indirect measurement system (column 31, lines 15-52).

With regard to claim 4, Heumann disclosed an indirect measurement system in accordance with claim 1, further comprising: a classification function that classifies the object into one of a plurality of classes based on the estimated value of the parameter of interest (column 25, lines 24-29).

With regard to claim 5, Heumann disclosed a system comprising: a correction function fitting procedure that fits the correction function based on reference values for one or more calibration samples measured on or simulated for the second indirect measurement system and corresponding values measured on the first indirect measurement system (column 28, lines 28 - column 29, line 21). Note: The recitation "A system for ..." has been interpreted as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Consequently, any fitting procedure would read on the claim. In other words, the origin or the nature of the data being fit is irrelevant. Furthermore, the only element in the system is the correction function fitting procedure since the system comprises only the correction function fitting procedure.

With regard to claim 6, Heumann disclosed a system in accordance with claim 5. However, since claim 6 fails to set forth additional structural limitation, it is accordingly rejected with claim 5.

With regard to claim 7, Heumann disclosed a system in accordance with claim 5, wherein: the correction function fitting procedure permits updating the correction function without updating the reference map function (they are independent of each other).

With regard to claim 8, Heumann disclosed a system in accordance with claim 5, further comprising: a reference map function fitting procedure that fits the reference map function based on known values of the parameter of interest associated with each of one or more reference calibration samples and corresponding reference values of the one or more reference calibration samples measured on or simulated for the second indirect measurement system (column 31, lines 15-52).

With regard to claim 9, Heumann disclosed a method for calibrating a first indirect measurement system with respect to a second indirect measurement system, the first indirect measurement system comprising a sensor (**30**, **240**) that produces a raw measurement (F) that is indirectly representative of a parameter (thickness) of interest of an object sensed by the sensor, a correction function (**510**) that corrects the raw measurement to a corrected measurement (ΔG) to minimize measurement differences between the first indirect measurement system and the second measurement system, and a reference map function that estimates an estimated value of the parameter of interest of the object based on the corrected measurement, the method comprising the steps of: obtaining measurement values (**512a - 512k**) of one or more calibration samples measured on the first indirect measurement system; and fitting the correction function based on the obtained measurement values of the one or more calibration samples and corresponding known reference values measured on or simulated for the second indirect measurement system (column 28, lines 28 - column 29, line 21).

With regard to claim 10, Heumann disclosed a method in accordance with claim 9, wherein: the correction function comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters (column 30, line 5 - column 31, line 14).

With regard to claim 12, Heumann disclosed a method in accordance with claim 9, further comprising: obtaining reference values of one or more reference calibration samples measured on or simulated for the second indirect measurement system; and fitting the reference map function based on the obtained reference values of the one or more reference calibration samples to corresponding known values of the parameters of interest associated with each of the one or more reference calibration samples (column 31, lines 15-52).

With regard to claim 13, Heumann disclosed a method in accordance with claim 12, further comprising: updating the correction function without updating the reference map function (fitting of the correction function and fitting the reference map function are independent of each other).

With regard to claim 19, Heumann disclosed an automated inspection system, comprising: an imaging system utilizing a source (**20**, **200**) of penetrating radiation and one or more sensors (**30**, **240**) to detect the penetrating radiation transmitted through an object to generate an image of the object from which is derived one or more features of the object that are representative of a parameter (thickness) of interest of the object; a correction function (**510**, **520**, **530**) that corrects the one or more features derived from the image of the object to one or more corresponding corrected features (ΔG) to minimize differences between the automated inspection system and a reference automated inspection system; and a reference map function (Eqs. 19-21)

that estimates an estimated value of the parameter of interest of the object based on the one or more corresponding corrected feature; and a correction function fitting procedure that fits the correction function based on one or more features derived from one or more images of one or more calibration samples imaged on the automated inspection system and corresponding reference features derived from one or more reference images imaged on the reference automated inspection system (column 28, lines 28 - column 29, line 21).

With regard to claim 20, Heumann disclosed an automated inspection system in accordance with claim 19, wherein: the correction function comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters (column 30, line 5 - column 31, line 14).

With regard to claim 21, Heumann disclosed an automated inspection system in accordance with claim 19, further comprising: a classification function that classifies the object into one of a plurality of classes based on the estimated value of the parameter of interest (column 25, lines 24-29).

With regard to claim 22, Heumann disclosed an automated inspection system in accordance with claim 19, wherein: the source of penetrating radiation comprises x-rays; and the image of the object comprises a gray level value representing detection of the x-rays (column 19, lines 58-64).

With regard to claim 23, Heumann disclosed an automated inspection system in accordance with claim 19. However, since claim 23 fails to set forth additional structural limitation, it is accordingly rejected with claim 19. MPEP § 2115.

With regard to claim 24, Heumann disclosed a system comprising: a correction function fitting procedure that fits the correction function (**510**) based on one or more features (**512a - 512k**) derived from one or more images of one or more calibration samples imaged on the first automated inspection system and corresponding reference features derived from one or more reference images imaged on the second automated inspection system (column 28, lines 28 - column 29, line 21). Note: The recitation "A system for ..." has been interpreted as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Consequently, any fitting procedure would read on the claim. In other words, the origin or the nature of the data being fit is irrelevant. Furthermore, the only element in the system is the correction function fitting procedure since the system comprises only the correction function fitting procedure.

With regard to claim 25, Heumann disclosed a system in accordance with claim 24. However, since claim 25 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 26, Heumann disclosed a system in accordance with claim 24, wherein: the correction function fitting procedure permits updating the correction function without updating the reference map function (they are independent of each other).

With regard to claim 27, Heumann disclosed a system in accordance with claim 24, further comprising: a reference map function fitting procedure (column 31, lines 15-52).

With regard to claim 28, Heumann disclosed a system in accordance with claim 24. However, since claim 28 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 29, Heumann disclosed a system in accordance with claim 24. However, since claim 29 fails to set forth additional structural limitation, it is accordingly rejected with claim 24.

With regard to claim 30, Heumann disclosed a method for calibrating a first automated inspection system with respect to a second automated inspection system, the first automated inspection system comprising an imaging system utilizing a source (**20, 200**) of penetrating radiation and one or more sensors (**30, 240**) to detect the penetrating radiation transmitted through an object to generate an image of the object from which is derived one or more features (gray level value) of the object that are representative of a parameter (thickness) of interest of the object, a correction function (**510, 520, 530**) that corrects the one or more features derived from the image of the object to one or more corresponding corrected features (ΔG) to minimize differences between the first automated inspection system and the second automated inspection system, and a reference map function (Eqs. 19-21) that estimates an estimated value of the parameter of interest of the object based on the one or more corresponding corrected features, the method comprising the steps of: obtaining one or more features (**512a - 512k**) derived from one or more images of one or more calibration samples imaged on the first automated inspection system; and fitting the correction function based on the one or more features derived from the one or more images of the one or more calibration samples and corresponding reference features

derived from one or more reference images imaged on the second automated inspection system (column 28, lines 28 - column 29, line 21).

With regard to claim 31, Heumann disclosed a method in accordance with claim 30, wherein: the correction function comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters (column 30, line 5 - column 31, line 14).

With regard to claim 33, Heumann disclosed a method in accordance with claim 30, further comprising: obtaining one or more reference features derived from one or more images of one or more reference calibration samples imaged on the second automated inspection system; and fitting the reference map function based on the obtained one or more reference features derived from the one or more images of the one or more reference calibration samples and corresponding known values of the parameter of interest associated with each of the one or more reference calibration samples (column 31, lines 15-52).

With regard to claim 34, Heumann disclosed a method in accordance with claim 33, further comprising the step of updating the correction function without updating the reference map function (fitting of the correction function and fitting the reference map function are independent of each other).

With regard to claim 35, Heumann disclosed a method in accordance with claim 30, wherein: the source of penetrating radiation comprises x-rays; and the one or more images or features derived therefrom comprises a gray level value reflecting detection of the x-rays penetrating the object (column 19, lines 58-64).

With regard to claim 36, Heumann disclosed a method in accordance with claim 30, wherein: the object comprises a solder joint of a printed circuit board and the parameter of interest is a solder thickness of the solder joint or a portion thereof (column 20, line 65 - column 21, line 9).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 2, 10, 20, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusterson (U. S. Patent No. 6,347,131 B1) as applied to claims 1, 9, 19, and 30 above, and further in view of Snedecor and Cochran.

With regard to claims 2, 10, 20, and 31, Gusterson disclosed a system in accordance with claims 1 and 19, and a method in accordance with claims 9 and 30. However, Gusterson failed to disclose a correction function that comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters.

Snedecor and Cochran disclosed non-linear curve fitting using a low-order polynomial function characterized by a small number of parameters (p. 398-419).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a correction function that comprises one of a low-order polynomial function and a parametric function characterized by a small number of parameters,

since a person would be motivated to fit data points that exhibit nonlinearity by using a nonlinear function.

12. Claims 11 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusterson (U. S. Patent No. 6,347,131 B1) as applied to claims 9 and 30 above.

With regard to claim 11, Gusterson disclosed a method in accordance with claim 9. However, Gusterson failed to disclose the steps of: re-obtaining measurement values of one or more calibration samples measured on the first indirect measurement system; and re-fitting the correction function based on the re-obtained measurement values of the one or more calibration samples and corresponding known reference values measured on or simulated for the second indirect measurement system.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to repeat the method steps, since a person would be motivated to repeat the calibration of the system whenever the system has undergone changes.

With regard to claim 32, Gusterson disclosed a method in accordance with claim 30. However, Gusterson failed to disclose the steps of: re-obtaining one or more features derived from one or more images of one or more calibration samples imaged on the first automated inspection system; and re-fitting the re-obtained one or more features derived from the one or more images of the one or more calibration samples and corresponding reference features derived from one or more reference images imaged on the second automated inspection system.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to repeat the method steps, since a person would be motivated to repeat the calibration of the system whenever the system has undergone changes.

13. Claims 14, 16, 37, 39, and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Gusterson (U. S. Patent No. 6,347,131 B1) as applied to claims 9, 11, 30, 32, and 35 above.

With regard to claims 14, 16, 37, 39, and 42, Gusterson disclosed a method in accordance with claims 9, 11, 30, 32, and 35. However, Gusterson failed to disclosed a computer readable medium embodying program instructions implementing a method in accordance with claims 9, 11, 30, 32, and 35.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a computer readable medium embodying program instructions implementing a method in accordance with claims 9, 11, 30, 32, and 35, since a person would be motivated to implement the methods using a computer.

14. Claims 15 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusterson (U. S. Patent No. 6,347,131 B1) and Snedecor and Cochran as applied to claims 10 and 31 above.

With regard to claims 15 and 38, Gusterson and Snedecor and Cochran disclosed a method in accordance with claims 10 and 31.

15. Claims 11 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heumann (U. Patent No. 6,201,850 B1) as applied to claims 9 and 30 above.

With regard to claim 11, Heumann disclosed a method in accordance with claim 9. However, Heumann failed to disclose the steps of: re-obtaining measurement values of one or more calibration samples measured on the first indirect measurement system; and re-fitting the correction function based on the re-obtained measurement values of the one or more calibration

samples and corresponding known reference values measured on or simulated for the second indirect measurement system.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to repeat the method steps, since a person would be motivated to repeat the calibration of the system whenever the system has undergone changes.

With regard to claim 32, Heumann disclosed a method in accordance with claim 30. However, Heumann failed to disclose the steps of: re-obtaining one or more features derived from one or more images of one or more calibration samples imaged on the first automated inspection system; and re-fitting the re-obtained one or more features derived from the one or more images of the one or more calibration samples and corresponding reference features derived from one or more reference images imaged on the second automated inspection system.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to repeat the method steps, since a person would be motivated to repeat the calibration of the system whenever the system has undergone changes.

16. Claims 14-18 and 37-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heumann (U. Patent No. 6,201,850 B1).

With regard to claims 14-18 and 37-43, Heumann disclosed a method in accordance with claims 9-13 and 30-36. However, Heumann failed to disclosed a computer readable medium embodying program instructions implementing a method in accordance with claims 9-13 and 30-36.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a computer readable medium embodying program instructions

implementing a method in accordance with claims 9-13 and 30-36, since a person would be motivated to implement the methods using a computer.

Response to Arguments

17. Applicant's arguments, filed 14 October 2005, with respect to the rejection(s) of claim(s) 1-3, 5, 6, 8-10, 12, 14, 15, and 17 under 35 U.S.C. 102 (b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gusterson (U. S. Patent No. 6,347,131 B1) and Heumann (U. S. Patent No. 6,201,850 B1).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho

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27 January 2006